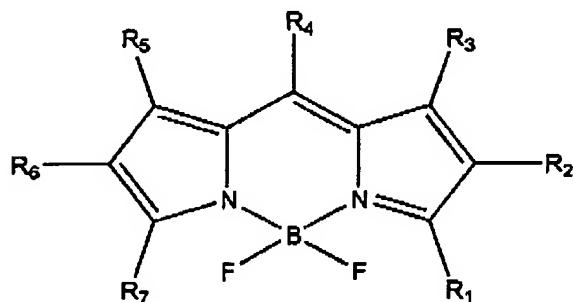


Haugland et al.
US Serial No. 10/005,050

AMENDMENT TO THE CLAIMS

The following is a complete listing of the claims.

1. (Currently Amended) A method of labeling poly(amino acids) comprising the steps of:
 - a. separating poly(amino acids) by gel electrophoresis, resulting in separated poly (amino acids);
 - b. transferring said separated poly(amino acids) to a solid support, resulting in immobilized poly(amino acids);
 - c. combining said immobilized poly(amino acids) on said solid support with a labeling mixture that comprises one or more chemically reactive dipyrrometheneboron difluoride dyes of the formula:



wherein each of R¹ through R⁷ are independently selected from the group consisting of H, halogen, maleimido, amine-reactive group, -L-Rx, substituted or unsubstituted C₁-C₆ alkyl, substituted or unsubstituted aryl, substituted or unsubstituted arylethenyl, substituted or unsubstituted arylbutadienyl, and substituted or unsubstituted heteroaryl
wherein at least one of R¹ through R⁷ is -L-Rx, wherein L is a spacer having 1-24 nonhydrogen atoms and Rx is a maleimide or a succinimidyl ester of a carboxylic acid an amine-reactive group;

Haugland et al.
US Serial No. 10/005,050

d. incubating the immobilized poly(amino acids) in the labeling mixture for a sufficient time for the chemically reactive dipyrrometheneboron difluoride dyes to form a covalent bond with said poly(amino acids), resulting in labeled poly(amino acids).

2. (Currently Amended) A method, as claimed in Claim 1, wherein Rx is said amine-reactive group is a succinimidyl ester of a carboxylic acid.

3. (Original) A method, as claimed in Claim 1, wherein said solid support is made of solvent-resistant materials that are selected from the group consisting of nylon, poly(vinylidene difluoride), glass, plastics, and their derivatives.

4. (Previously Amended) A method, as claimed in Claim 3, wherein said solid support is poly(vinylidene difluoride) .

5. (Cancelled).

6. (Currently Amended) A method, as claimed in Claim [[2]] 1, wherein said dye is present in the labeling mixture at a concentration of about 5 micromolar to about 20 micromolar.

7. (Cancelled).

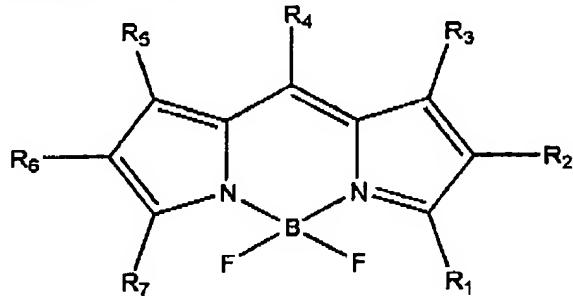
8. (Previously Amended) A method, as claimed in Claim 1, further comprising adding a specific binding pair member that contains a label and that binds selectively to a target within the immobilized poly(amino acids) that is its complementary binding pair.

9. (Currently Amended) A method of labeling poly(amino acids) bound to aptamers comprising the steps of:

a. incubating Immobilized aptamers with poly(amino acids) for a sufficient time to allow said poly(amino acids) to bind to their specific aptamers, resulting in immobilized poly(amino acids);

Haugland et al.
US Serial No. 10/005,050

- b. removing unbound poly(amino acids) that are not immobilized,
- c. combining said immobilized poly(amino acids) with a labeling mixture that comprises one or more chemically reactive dipyrrometheneboron difluoride dyes of the formula:



wherein each of R¹ through R⁷ are independently selected from the group consisting of H, halogen, -L-Rx, maleimido, amine-reactive group, substituted or unsubstituted C₁-C₆ alkyl, substituted or unsubstituted aryl, substituted or unsubstituted arylethynyl, substituted or unsubstituted arylbutadienyl, and substituted or unsubstituted heteroaryl;
provided that at least one of R¹ through R⁷ is -L-Rx, wherein L is a spacer having 1-24 nonhydrogen atoms and Rx is a maleimide or a succinimidyl ester of a carboxylic acid an amine-reactive group;

- d. incubating the immobilized poly(amino acids) with the labeling mixture for a sufficient time to form a covalent bond between the chemically reactive dipyrrometheneboron difluoride dye and said immobilized poly(amino acids), resulting in labeled poly(amino acids) that are bound to the aptamers.

10. (Currently Amended) A method, as claimed in Claim 9, wherein said amine-reactive group Rx is a succinimidyl ester of a carboxylic acid.

11. (Currently Amended) A method, as claimed in Claim [[10]] 9, wherein said dipyrrometheneboron difluoride dye is present in the labeling mixture at a

Haugland et al.
US Serial No. 10/005,050

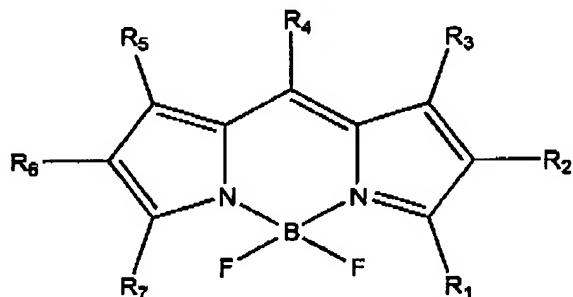
concentration of about 5 micromolar to about 20 micromolar.

12. (Cancelled)

13. (Currently Amended) A method, as claimed in Claim [[12]] 9, further comprising adding a specific binding pair member that contains a label and that binds selectively to a target within the immobilized poly(amino acids) that is its complementary binding pair.

14. (Currently Amended) A method of labeling immobilized poly(amino acids) in an array comprising the steps of:

- a. combining an array of immobilized poly(amino acids) with a labeling mixture that comprises one or more chemically reactive dipyrrometheneboron difluoride dyes of the formula



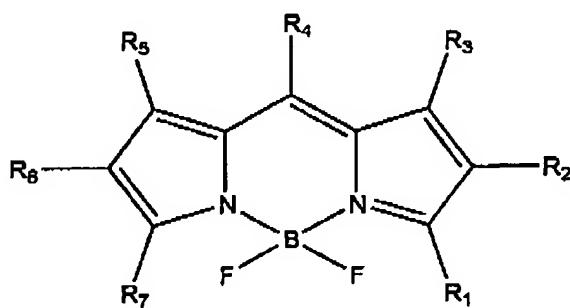
wherein each of R¹ through R⁷ are independently selected from the group consisting of H, halogen, -L-Rx, maleimide, amine-reactive group, substituted or unsubstituted C₁-C₈ alkyl, substituted or unsubstituted aryl, substituted or unsubstituted arylethynyl, substituted or unsubstituted arylbutadienyl, and substituted or unsubstituted heteroaryl; provided that at least one of R¹ through R⁷ is -L-Rx, wherein L is a spacer having 1-24 nonhydrogen atoms and Rx is a maleimide or a succinimidyl ester of a carboxylic acid amine-reactive group;

- b. incubating said array with the labeling mixture for a sufficient time to form a covalent bond between the dipyrrometheneboron difluoride dye and

Haugland et al.
US Serial No. 10/005,050

said immobilized poly(amino acids), resulting in the array of poly(amino acids) being labeled.

15. (Currently Amended) A method, as claimed in Claim 14, wherein Rx said amine-reactive group is a succinimidyl ester of a carboxylic acid.
16. (Currently Amended) A method, as claimed in Claim [[15]] 14, wherein said dipyrrometheneboron difluoride dye is present in the labeling mixture at a concentration of about 5 micromolar to about 20 micromolar.
17. (Cancelled).
18. (Cancelled).
19. (Original) A method, as claimed in Claim 14, further comprising adding specific binding pair member that contains a label and that binds selectively to a target within the immobilized poly(amino acids) that is its complementary binding pair.
20. (Currently Amended) A method of detecting poly(amino acids) comprising the steps of:
 - a. combining poly(amino acids) immobilized on a solid support; with a labeling mixture that comprises one or more chemically reactive dipyrrometheneboron difluoride dyes of the formula



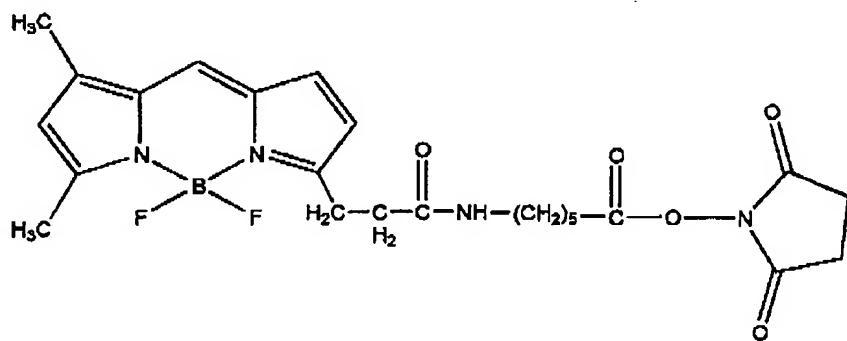
Haugland et al.
US Serial No. 10/005,050

wherein each of R¹ through R⁷ are independently selected from the group consisting of H, halogen, maleimide, amino-reactive-group, substituted or unsubstituted C₁-C₆ alkyl, substituted or unsubstituted aryl, substituted or unsubstituted arylethenyl, substituted or unsubstituted arylbutadienyl, and substituted or unsubstituted heteroaryl;

provided that at least one of R¹ through R⁷ is -L-Rx, wherein L is a spacer having 1-24 nonhydrogen atoms and Rx is a maleimide or a succinimidyl ester of a carboxylic acid an amino-reactive-group;

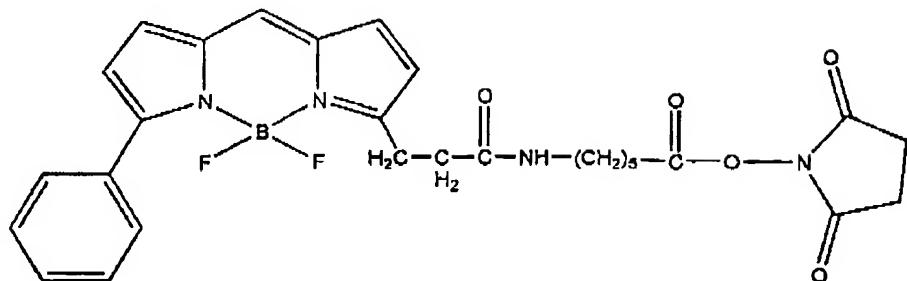
- b. incubating said immobilized poly(amino acids) with the labeling mixture for a sufficient time to form a covalent bond between the chemically reactive dipyrrometheneboron difluoride dye and said immobilized poly(amino acids) resulting in labeled poly(amino acids);
- c. removing unbound dipyrrometheneboron difluoride dyes;
- d. illuminating said labeled poly(amino acids) to yield a fluorescent optical response to detect the corresponding labeled poly(amino acids).

21. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

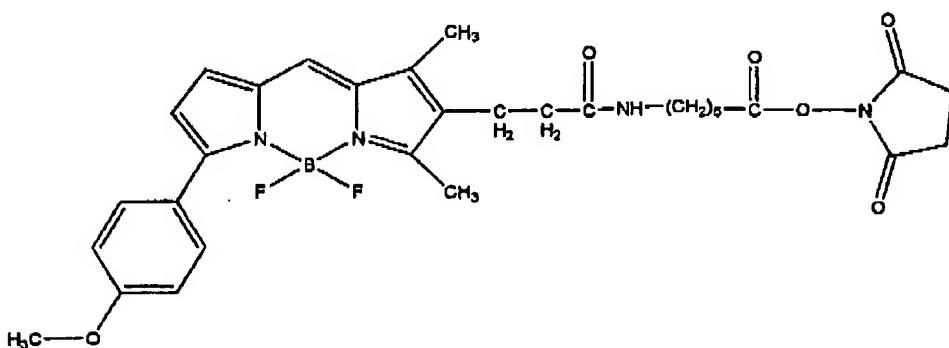


22. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

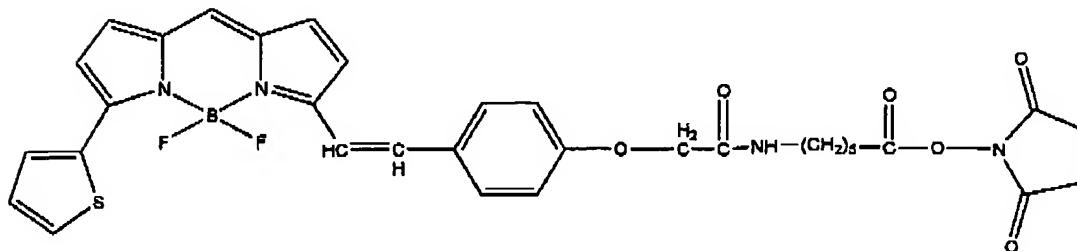
Haugland et al.
US Serial No. 10/005,050



23. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

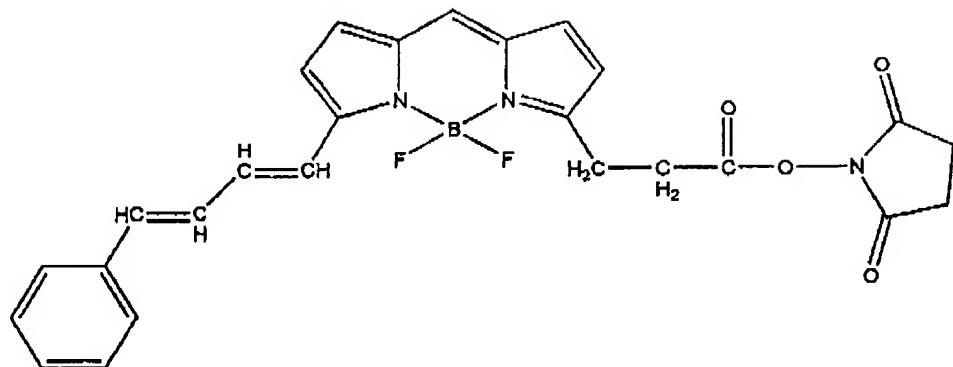


24. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

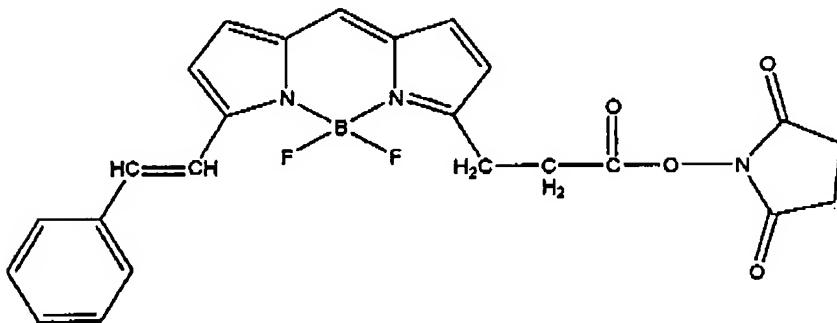


25. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

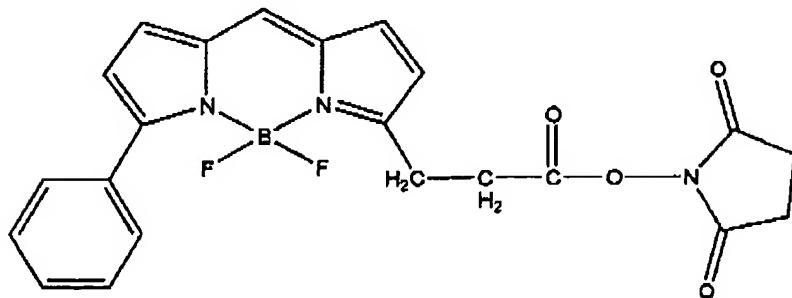
Haugland et al.
US Serial No. 10/005,050



26. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

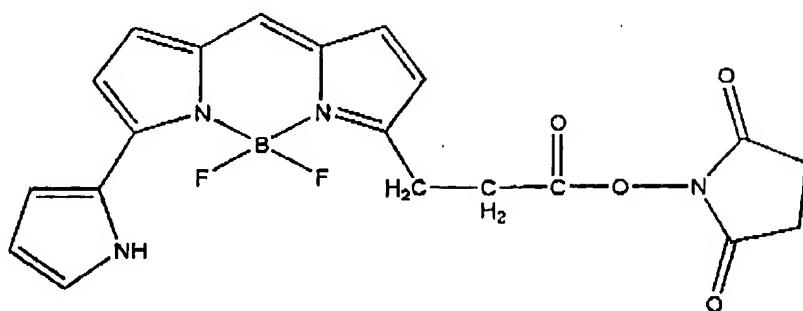


27. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

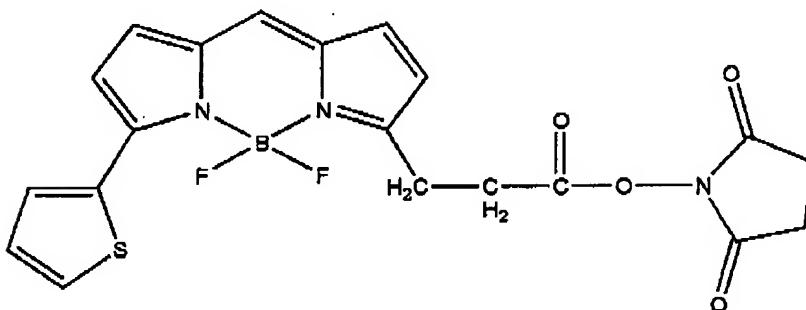


28. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

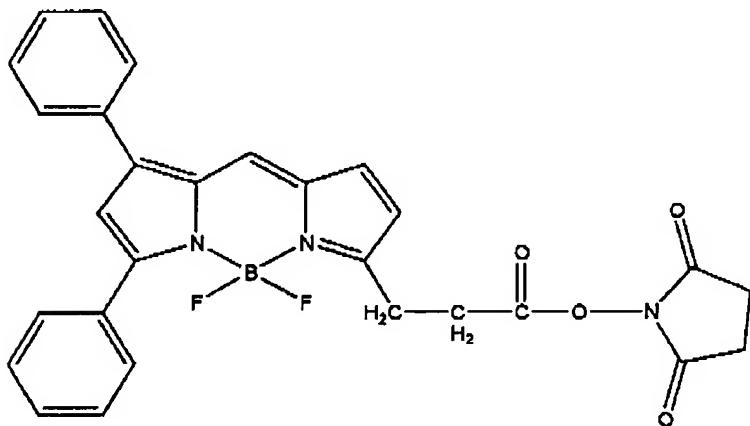
Haugland et al.
US Serial No. 10/005,050



29. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:

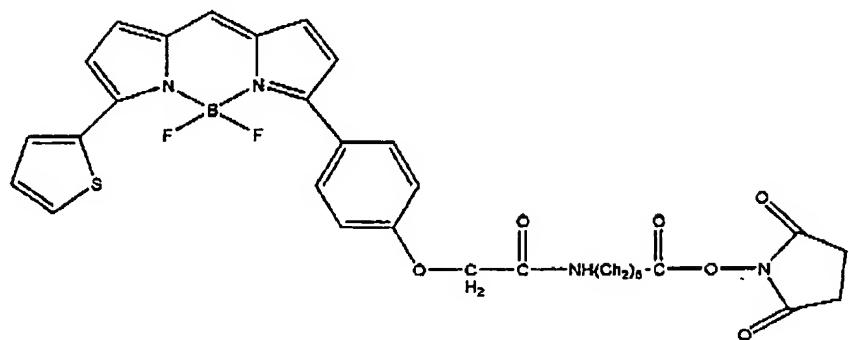


30. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:



Haugland et al.
US Serial No. 10/005,050

31. (Original) A method, as claimed in Claim 20, wherein the dipyrrometheneboron difluoride dye has the formula:



32. (Original) A method, as claimed in Claim 20, wherein said solid support is made of solvent-resistant materials that are selected from the group consisting of nylon, poly(vinylidene difluoride), glass, plastics, and their derivatives.

33. (Previously Amended) A method, as claimed in Claim 32, wherein said solid support is poly(vinylidene difluoride).

34. (Cancelled).

35. (Cancelled)

36. (Currently Amended) A method, as claimed in Claim [[35]] 20, wherein said dipyrrometheneboron difluoride dye is present in the labeling mixture at a concentration of about 5 micromolar to about 20 micromolar.

37. (Original) A method, as claimed in Claim 20, further comprising adding a specific binding pair member that selectively binds to a target within said immobilized poly(amino acids) that is its complementary binding pair.

Haugland et al.
US Serial No. 10/005,050

38. (Original) A method, as claimed in Claim 37, where said specific binding pair member contains a label that is an enzyme or a hapten.
39. (Original) A method, as claimed in Claim 37, where said specific binding pair member contains a label that is a fluorophore.
40. (Original) A method, as claimed in Claim 37, further comprising:
adding a secondary complementary binding pair member that contains a label and that selectively binds to the specific binding pair member.
41. (Original) A method, as claimed in Claim 40, wherein the label on the secondary complementary binding pair is an enzyme.
42. (Original) A method, as claimed in Claim 40, wherein the label on the secondary complementary binding pair is a fluorescent dye.
43. (Original) A method, as claimed in Claim 41, wherein said enzyme is a peroxidase or a phosphatase.
44. (Original) A method, as claimed in Claim 43, wherein said peroxidase is horseradish peroxidase.
45. (Original) A method, as claimed in Claim 43 wherein said phosphatase is alkaline phosphatase.
46. (Previously Amended) A method, as claimed in Claim 41, wherein said enzyme is capable of utilizing a fluorogenic substrate to generate a detectable optical response.
47. (Original) A method, as claimed in Claim 46, wherein said enzyme is a peroxidase and said fluorogenic substrate is a fluorescent tyramide.
48. (Original) A method, as claimed in Claim 46, wherein said enzyme is a phosphatase and said fluorogenic substrate is a quinazolinone phosphate.

Haugland et al.
US Serial No. 10/005,050

49. (Original) A method, as claimed in Claim 46, wherein said enzyme is a phosphatase and said fluorogenic substrate is 9H-(1,3-dichloro-9,9-dimethylacridin- 2-one-7-yl) phosphate.

50. (Original) A method, as claimed in Claim 46, wherein said enzyme is a peroxidase and said fluorogenic substrate is a polyfluorinated xanthene.

51. (Original) A method, as claimed in Claim 40, wherein said secondary complimentary binding pair is an antibody or an antibody fragment.

52. (Original) A method, as claimed in Claim 39, wherein said complementary specific binding pair member is a lectin.

53. (Original) A method, as claimed in Claim 39, wherein said specific binding pair member is biotin-binding protein that contains a label.

54. (Original) A method, as claimed in Claim 53, wherein said biotin-binding protein is streptavidin.

55. (Original) A method, as claimed in Claim 53, wherein said biotin-binding protein is NeutrAvidin.

56. (Original) A method, as claimed in Claim 37, wherein said specific binding pair member is an antibody or antibody fragment, an aptamer, a lectin, or a biotin-binding protein.

57. (Cancelled).

58. (Cancelled).

59. (Cancelled).

60. (Cancelled).

Haugland et al.
US Serial No. 10/005,050

61. (Canceled).

62. (Canceled).

63. (Canceled).

64. (Canceled).

65. (Canceled).

66. (Canceled).

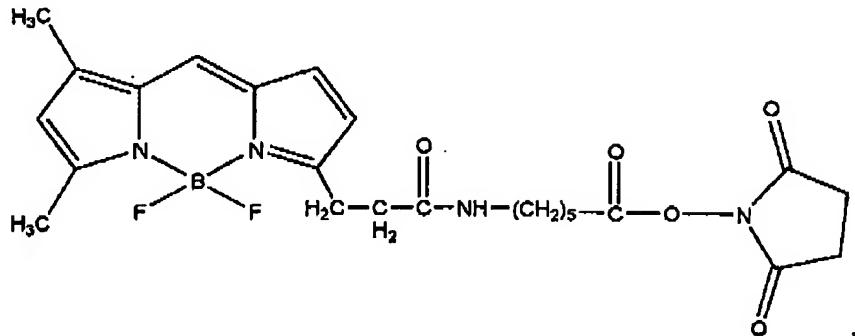
67. (Canceled).

68. (Canceled).

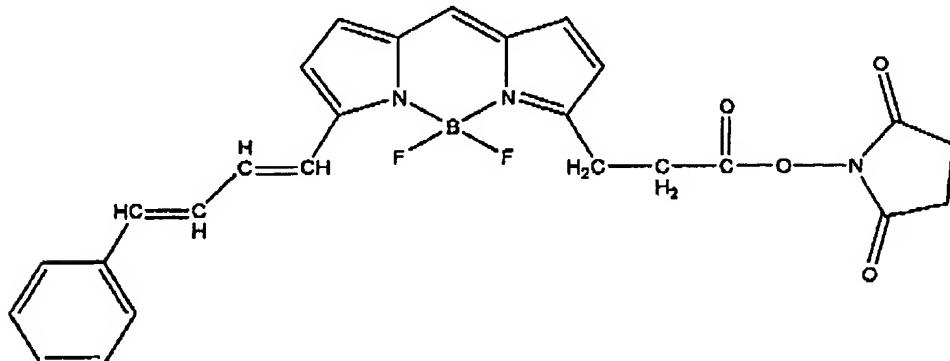
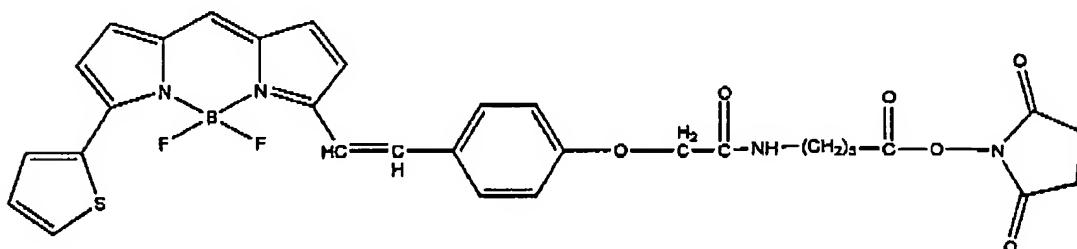
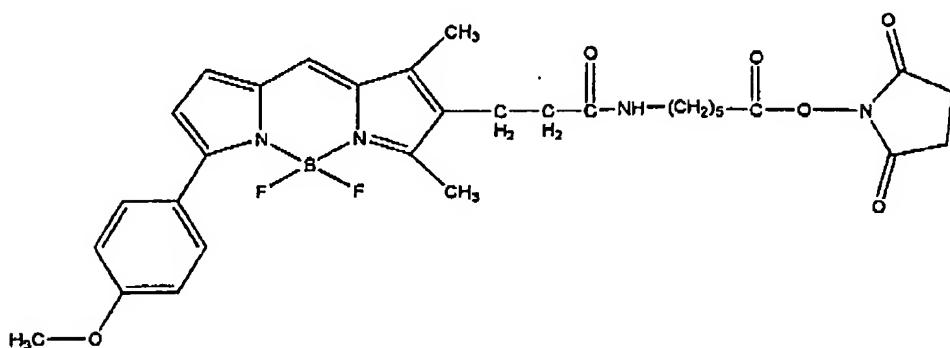
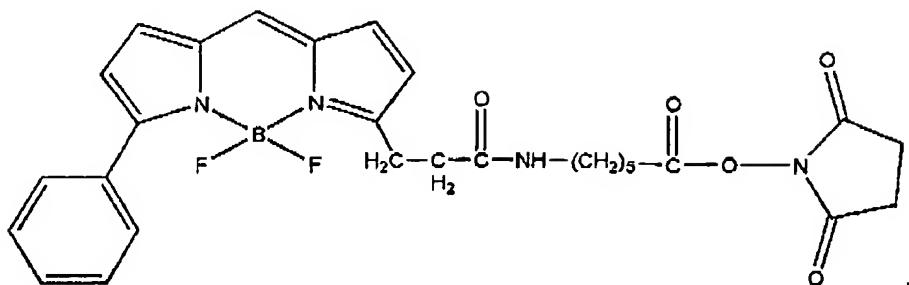
69. (Canceled).

70. (Canceled).

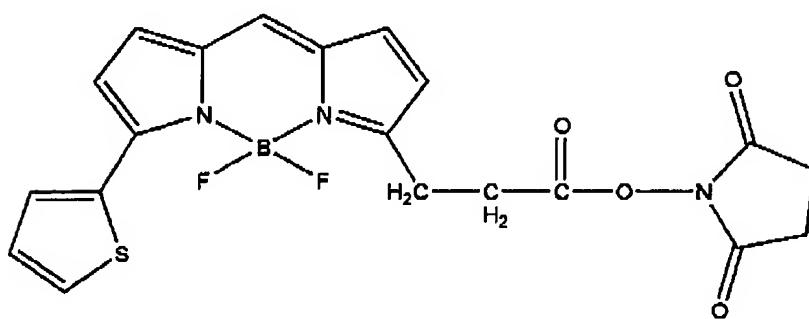
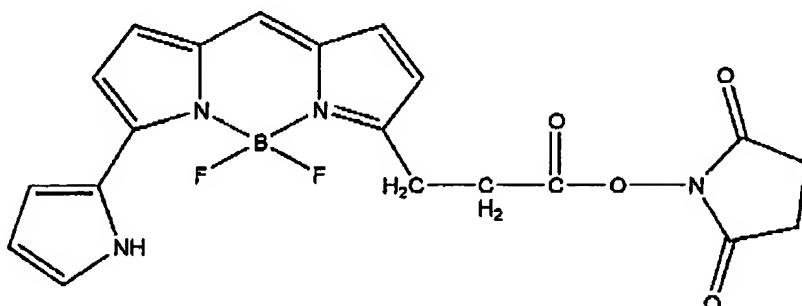
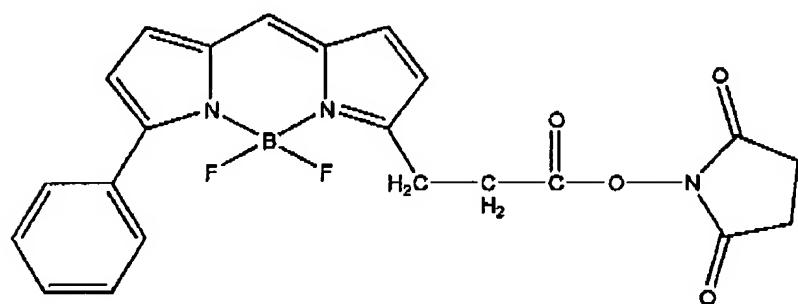
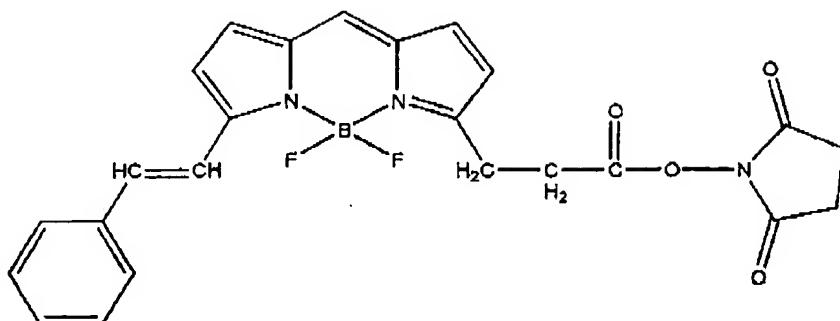
71. (Currently Amended) A method, as claimed in Claim [[6]] 1, wherein said dye is selected from the group consisting of



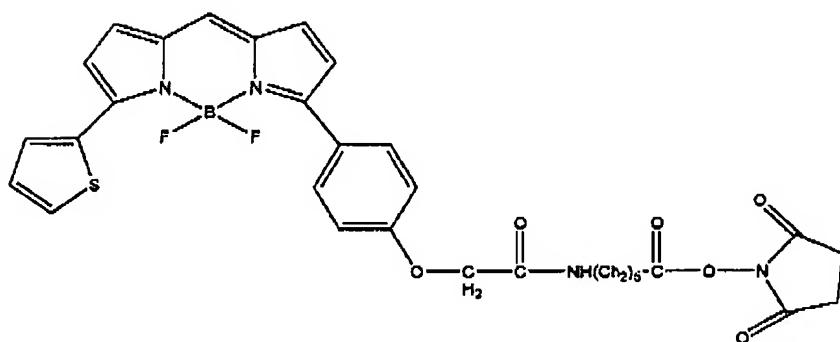
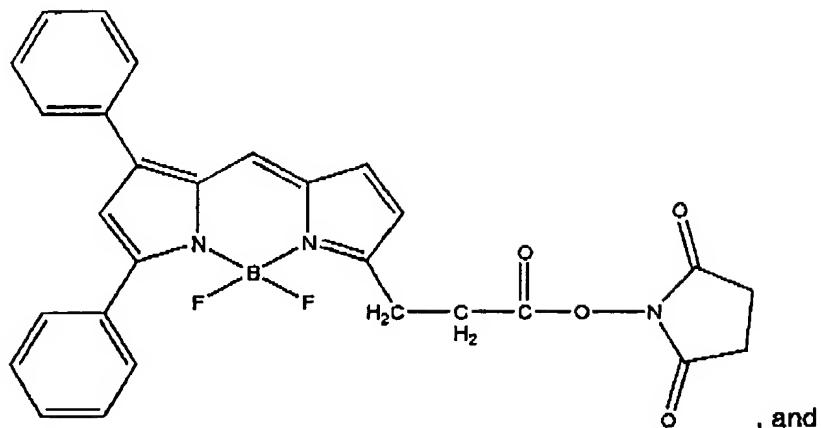
Haugland et al.
US Serial No. 10/005,050



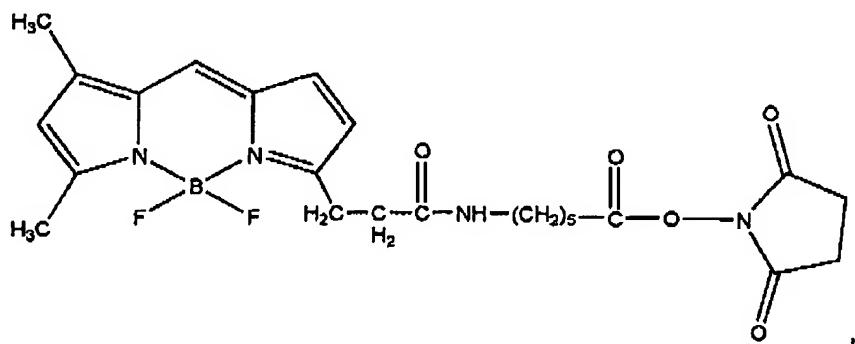
Haugland et al.
US Serial No. 10/005,050



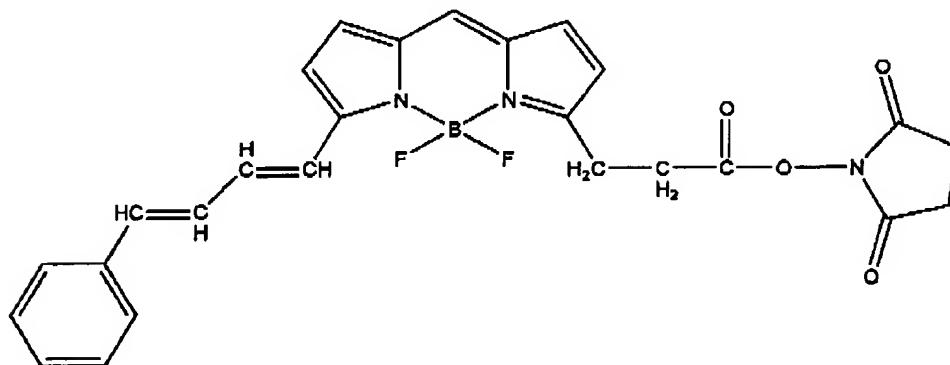
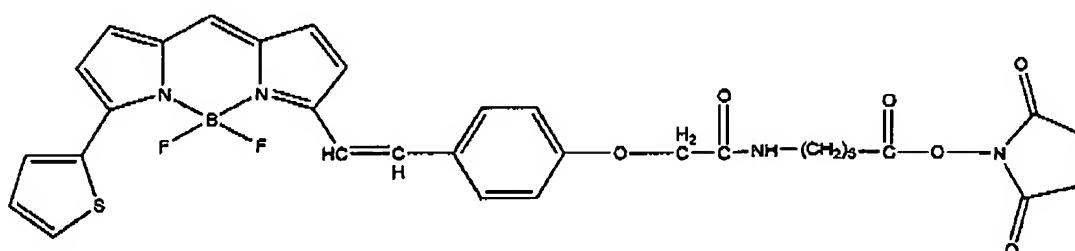
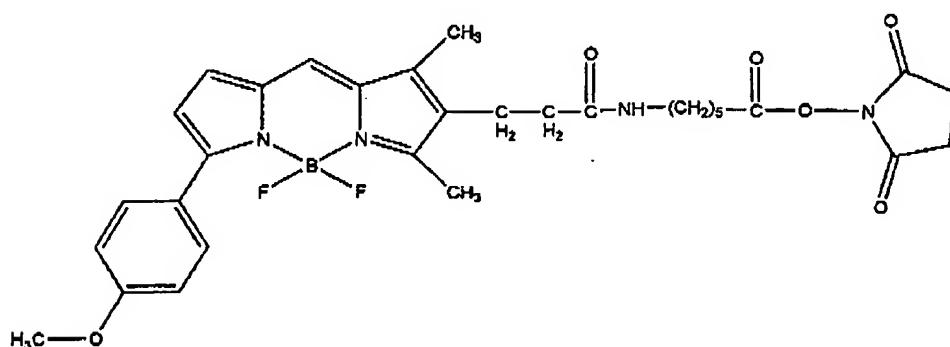
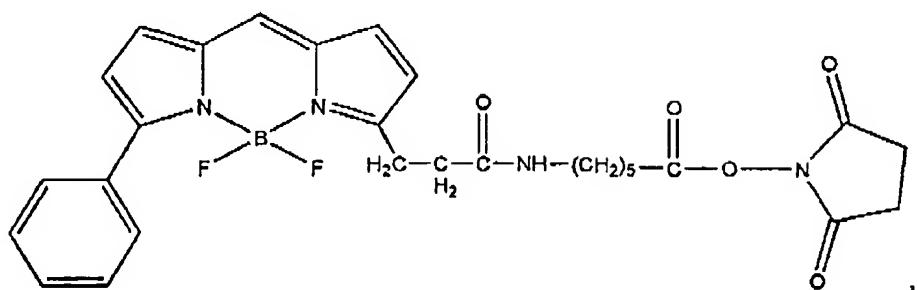
Haugland et al.
US Serial No. 10/005,050



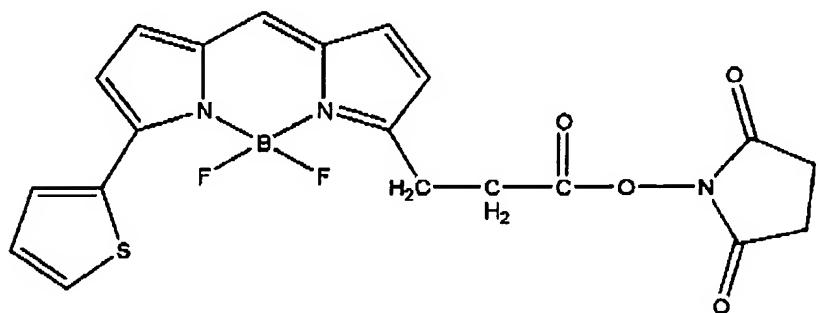
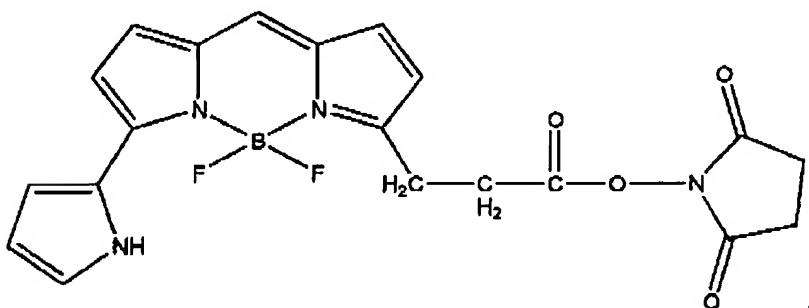
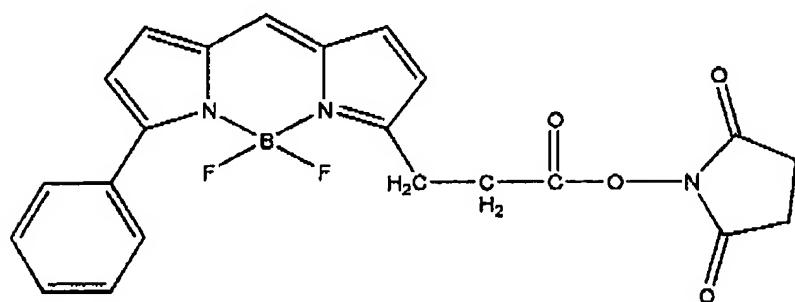
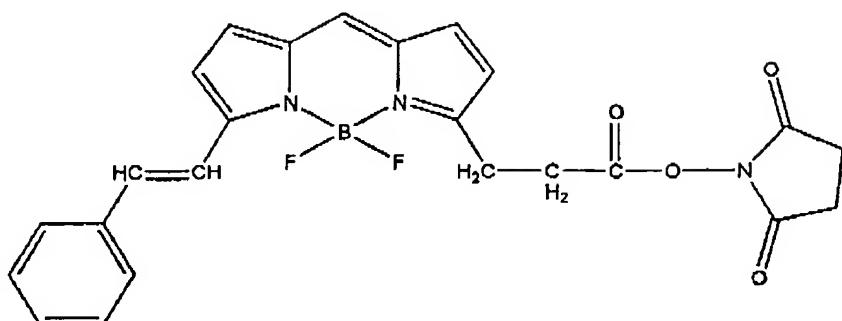
72. (Currently Amended) A method, as claimed in Claim [[11]] 9, wherein said dye is selected from the group consisting of



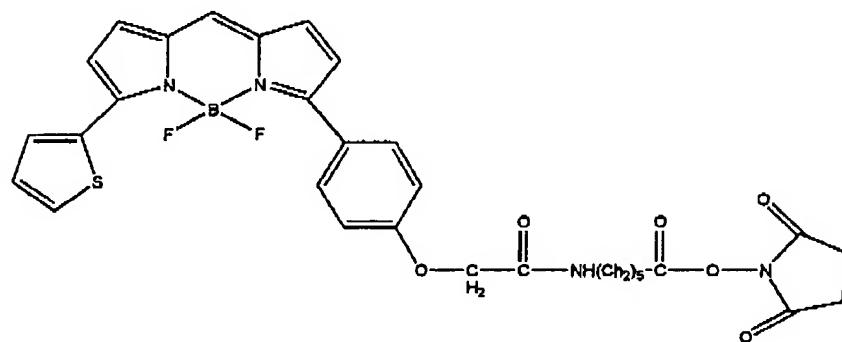
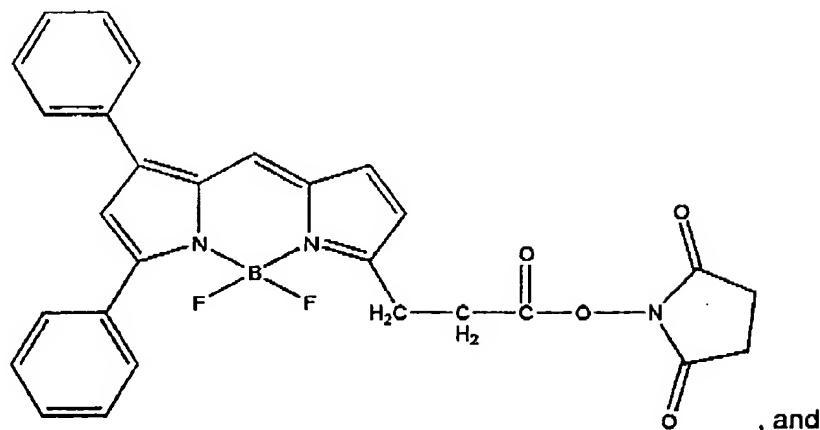
Haugland et al.
US Serial No. 10/005,050



Haugland et al.
US Serial No. 10/005,050



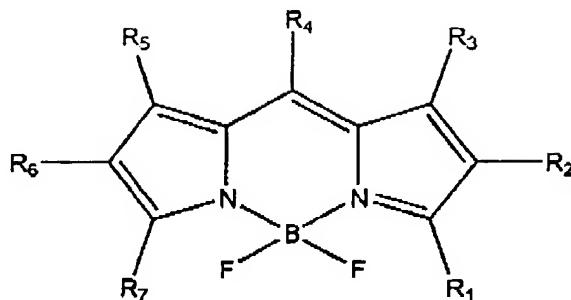
Haugland et al.
US Serial No. 10/005,050



73. (Currently Amended) A method of detecting immobilized poly(amino acids) comprising the steps of:

- a) separating poly(amino acids) by gel electrophoresis, resulting in separated poly (amino acids);
- b) transferring said separated poly(amino acids) to a solid support, resulting in immobilized poly(amino acids) ;
- c) combining said immobilized poly(amino acids) on said solid support with a labeling mixture that comprises one or more chemically reactive dipyrrometheneboron difluoride dyes of the formula:

Haugland et al.
US Serial No. 10/005,050



wherein each of R¹ through R⁷ are independently selected from the group consisting of H, halogen, -L-Rx, ~~maleimide, amino reactive group,~~ substituted or unsubstituted C₁-C₆ alkyl substituted or unsubstituted aryl, substituted or unsubstituted arylethenyl, substituted or unsubstituted arylbutadienyl, and substituted or unsubstituted heteroaryl;

wherein at least one of R¹ through R⁷ is -L-Rx, wherein L is a spacer having 1-24 nonhydrogen atoms and Rx is a maleimide or a succinimidyl ester of a carboxylic acid an amino reactive group;

- d) incubating the immobilized poly(amino acids) in the labeling mixture for a sufficient time for the chemically reactive dipyrrometheneboron difluoride dyes to form a covalent bond with said poly(amino acids), resulting in labeled poly(amino acids);
- e) removing unbound dipyrrometheneboron difluoride dyes;
- f) illuminating said labeled poly(amino acids) to yield a fluorescent optical response to detect the corresponding labeled poly(amino acids).

74. (Previously Added) A method, as claimed in Claim 73, wherein said solid support is made of solvent-resistant materials that are selected from the group consisting of nylon, poly(vinylidene difluoride), glass, plastics, and their derivatives.

75. (Currently Amended) A method, as claimed in Claim ([74]) 73, wherein said solid support is poly(vinylidene difluoride).

Haugland et al.
US Serial No. 10/005,050

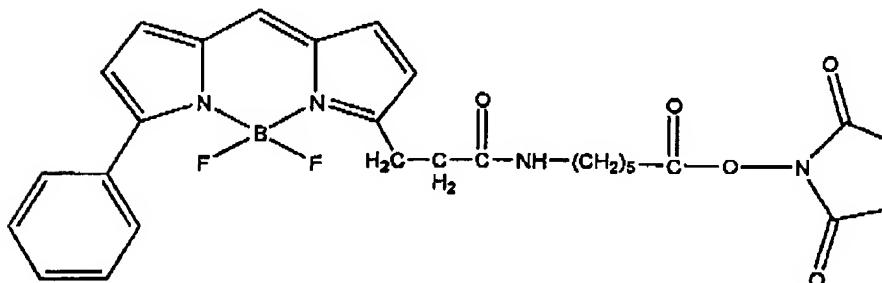
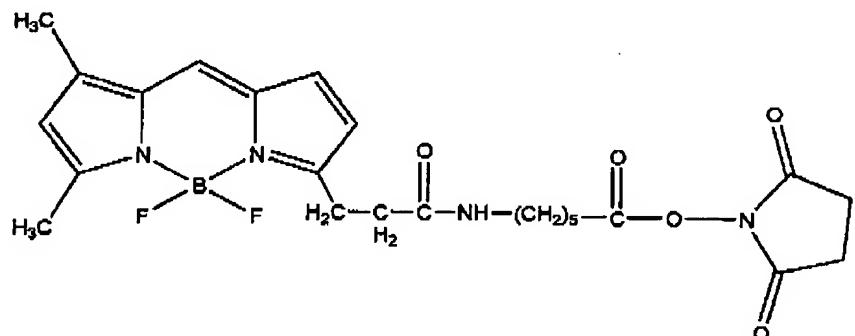
76. (Currently Amended) A method, as claimed in Claim [[75]] 73, wherein said dipyrrometheneboron difluoride dye is present in the labeling mixture at a concentration of about 5 micromolar to about 20 micromolar.

77. (Previously Added) A method, as claimed in Claim [[76]] 73, further comprising adding a specific binding pair member that selectively binds to a target within said immobilized poly(amino acids) that is its complementary binding pair.

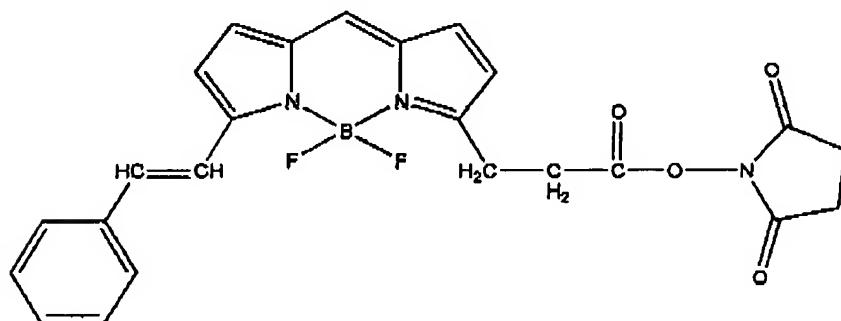
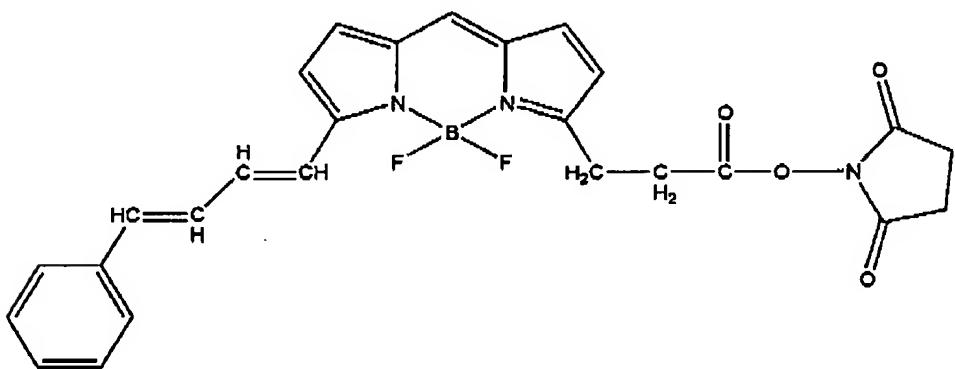
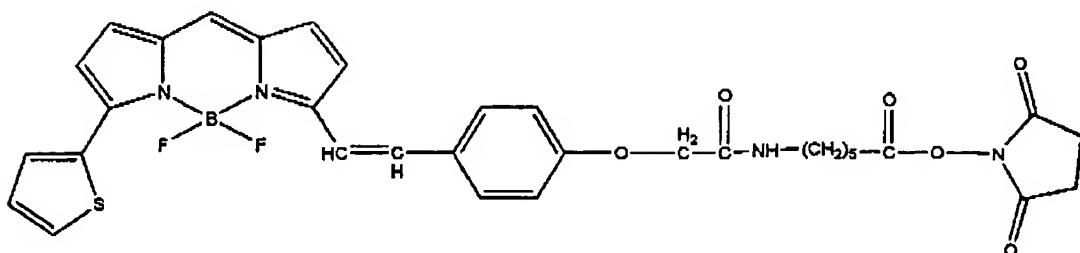
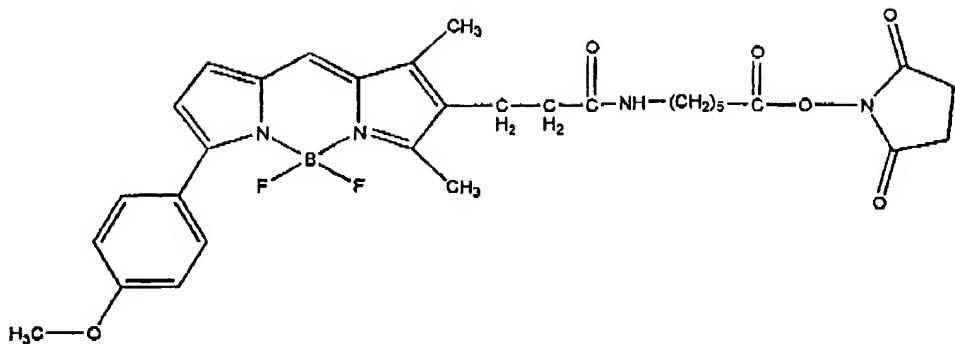
78. (Currently Amended) A method, as claimed in Claim 77, where said specific binding pair member contains a label that is an enzyme, a ~~fluorophore~~ fluorophore or a hapten.

79. (Previously Added) A method, as claimed in Claim 77, further comprising: adding a secondary complementary binding pair member that contains a label and that selectively binds to the specific binding pair member.

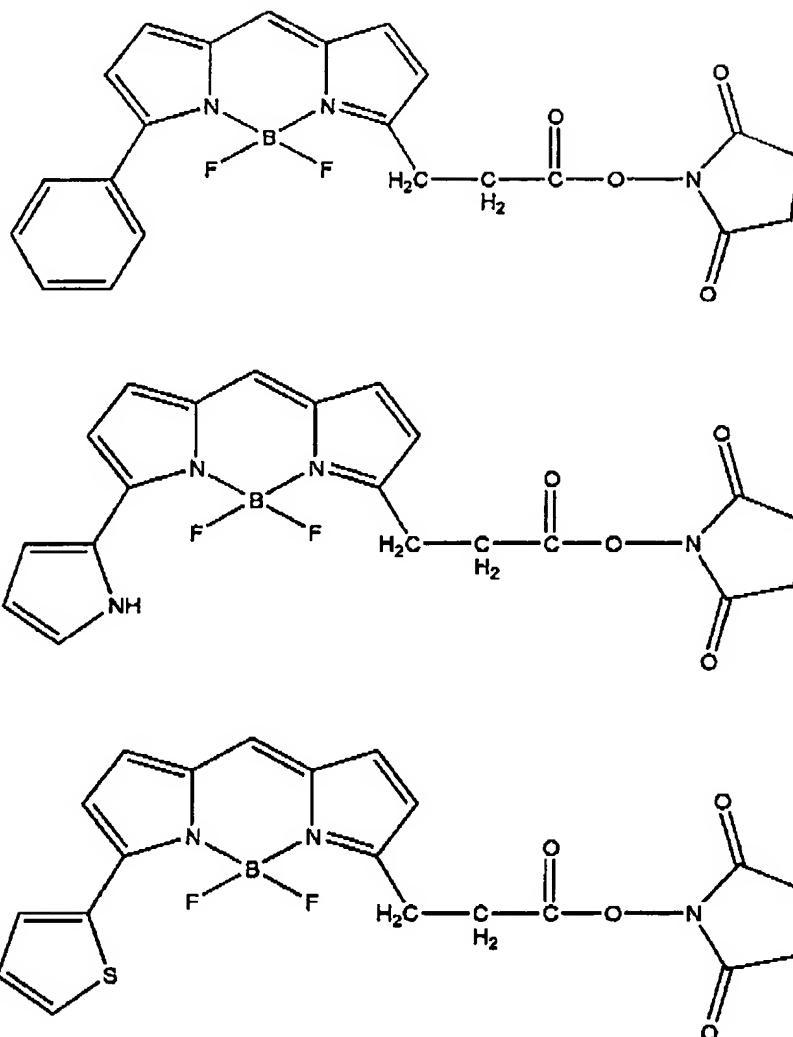
80. (Currently Amended) A method, as claimed in Claim [[76]] 73, wherein said dye is selected from the group consisting of



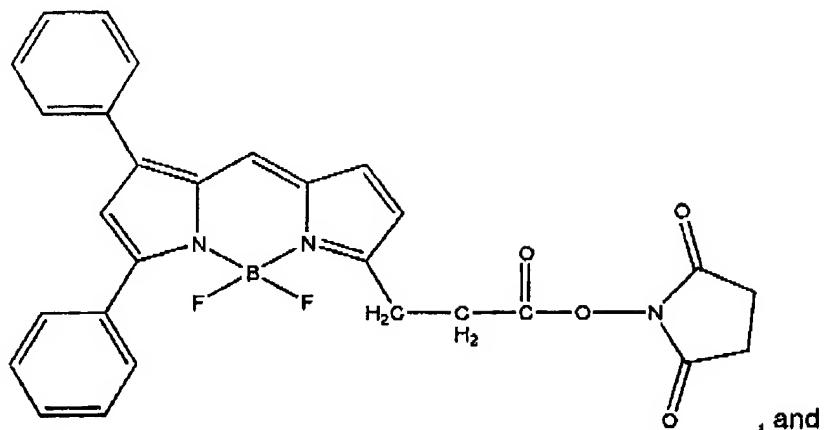
Haugland et al.
US Serial No. 10/005,050



Haugland et al.
US Serial No. 10/005,050



Haugland et al.
US Serial No. 10/005,050



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